

We claim :

1. A Sstable polymorph IV of tiagabine hydrochloride that exhibits an X-ray powder diffraction pattern having characteristic peaks expressed in degrees 2 theta at about 13.6, 14.5, 15.4, 16.2, 16.8, 23.0, 24.7, 26.0.
2. A Sstable polymorph IV of tiagabine hydrochloride that exhibits an X-ray powder diffraction pattern having characteristic peaks expressed in degrees 2 theta at 4.46, 5.03, 5.48, 6.46, 7.46, 8.11, 8.35, 9.45, 10.29, 11.41, 11.94, 12.32, 12.91, 13.59, 13.83, 14.52, 14.82, 14.85, 15.36, 15.97, 16.26, 16.83, 17.85, 18.36, 18.59, 18.85, 19.25, 19.45, 20.36, 20.98, 21.59, 22.15, 22.49, 22.99, 23.67, 23.96, 24.75, 25.33, 25.62, 25.97, 26.43, 27.02, 27.48, 27.94, 28.16, 28.88, 29.63, 30.27, 30.87, 31.54, 32.11, 32.52, 32.96, 33.52, 33.89, 34.45, 35.33, 35.59, 36.02, 36.53, 36.77, 37.28, 37.75, 38.24, 39.12.
3. A Sstable polymorph IV of tiagabine hydrochloride that exhibits unit cell parameters as follows:

$a = 10.788(3)\text{\AA}$ $\alpha = 97.65(2)^\circ$
 $b = 11.492(2)\text{\AA}$ $\beta = 108.92(2)^\circ$
 $c = 14.799(4)\text{\AA}$ $\gamma = 101.86(2)^\circ$

4. A Sstable polymorph IV of tiagabine hydrochloride of a particle size with volume mean diameter less than 20 microns.
5. A Ttiagabine hydrochloride acetonitrile solvate.
6. A Ccrystalline tiagabine hydrochloride acetonitrile solvate.

7. A crystalline tiagabine hydrochloride acetonitrile solvate that exhibits an X-ray powder diffraction pattern having characteristic peaks expressed in degrees 2 theta at approximately 7.9, 21.5, 22.0, 24.3, 24.9, 26.7, 27.8.
8. An amorphous tiagabine hydrochloride.
9. A process for the preparation of crystalline tiagabine hydrochloride form IV comprising dissolving tiagabine hydrochloride in an organic solvent or a mixture of organic solvent and organic anti-solvent and adding a sufficient amount of organic anti-solvent to the solution to cause crystallization at a selected temperature wherein the selected temperature is such that form IV of tiagabine hydrochloride is crystallized.
10. A process as claimed in claim 9 wherein the organic solvent is dimethylformamide, the organic anti-solvent is toluene, and the selected temperature is $35+or-\pm 10^{\circ}\text{C}$.
11. A process as claimed in claim 10 wherein the selected temperature is room temperature followed by cooling to 0 to 10°C for further crystallization.
12. A process as claimed in claim 9 wherein the tiagabine hydrochloride is dissolved in a mixture of dimethylformamide and toluene and a sufficient amount of toluene is added to cause crystallization at $35+or-\pm 10^{\circ}\text{C}$.
13. A process for the preparation of tiagabine hydrochloride form III comprising adding tiagabine hydrochloride to an organic solvent, heating to dissolve and adding sufficient amount of organic anti-solvent to cause crystallization at a selected temperature wherein the selected temperature is such that form III of tiagabine hydrochloride is crystallized.

14. A process as claimed in claim 13 wherein the organic solvent is dimethylformamide, and the organic anti-solvent is toluene, and wherein the selected temperature is 50 to 55⁰C
15. A process as claimed in claim 14 wherein the selected temperature is 50 to 55⁰C followed by cooling to 0 to 10⁰C for further crystallization.
16. A process for the preparation of crystalline tiagabine hydrochloride form IV comprising crystallizing tiagabine hydrochloride from a solution of tiagabine hydrochloride in an organic solvent or a mixture of organic solvent and organic anti-solvent wherein the solution is seeded with tiagabine hydrochloride form IV seed crystals.
17. A process for the preparation of crystalline tiagabine hydrochloride form III comprising crystallizing tiagabine hydrochloride from a solution of tiagabine hydrochloride in an organic solvent or a mixture of organic solvent and organic anti-solvent wherein the solution is seeded with tiagabine hydrochloride form III seed crystals.
18. ~~Tiagabine hydrochloride as claimed in claims 1 to 17 substantially as herein described and illustrated by examples 1 to 4.~~